

# An important tip for PDP-11 users

## Play the blue-chip cards from Able.

### COMMUNICATIONS PRODUCTS

#### DMAX/16™

(16-LINE DH11 REPLACEMENT)

**INSTALLS IN:** All PDP-11's; in less than one half the space of DH11. **DATA RATES:** All 14 standard baud rates plus 19.2K baud and one user programmable data rate (16 baud rates). **PROCESSING ADVANTAGES:** Word transfers (in lieu of byte DMA) cut processing overhead by half! **OPERATING MODES:** Full or half duplex with full modem control via DM/16 option. **CAPACITY:** Up to 256 lines on a single PDP-11.

#### QUADRASYNC/B™

(4-LINE DL-11 REPLACEMENT/EIA)

**INSTALLS IN:** All PDP-11's; 4-lines per SPC slot at one unit load to Unibus. **DATA RATES:** 7 independently selectable baud rates for each of 4 channels (150-9600). **ELECTRICAL:** EIA standard RS232C (Modem control not supported). **VECTOR/ADDRESS SELECTION:** Vector and address values to be set on boundaries of 008 or 408. 16 continuous word address for Vector or Address.

#### QUADRASYNC/C™

(4-LINE DL11 REPLACEMENT/CL)

**INSTALLS IN:** All PDP-11's; 4-lines per SPC slot at one unit load to Unibus. **DATA RATES:** 7 independently selectable baud rates for each of 4 channels (150-9600). **ELECTRICAL:** 20MA current loop (Send : Receive). **VECTOR/ADDRESS SELECTION:** Vector and address values to be set on boundaries of 008 or 408. 16 continuous word address for Vector or Address.

#### QUADRASYNC/E™

(4-LINE DL11-E REPLACEMENT)

**INSTALLS IN:** All PDP-11's; 4-lines per SPC slot at one unit load to Unibus. **DATA RATES:** 7 independently selectable baud rates for each of 4 channels (150-9600). **ELECTRICAL:** EIA standard RS232C – with modem control. **VECTOR/ADDRESS SELECTION:** 16 continuous word address for Vector or Address – starting values selected on any boundary.

#### QUADRASYNC/LSI™

(4-LINE DLV11 REPLACEMENT)

**INSTALLS IN:** LSI-11 and PDP-11/08; 4-lines/card at one unit load to Unibus. **DATA RATES:** 8 independently selectable baud rates for each of 4-channels (110-9600). **ELECTRICAL:** 20MA active/passive current loop (Send : Receive) – also supports EIA standard RS232C. **VECTOR/ADDRESS SELECTION:** Like DLV-11 – 3-channels must have contiguous addresses and 1-channel may be set to any address including console address.

#### QUADRACALL™

(4-LINE DN11 REPLACEMENT)

**INSTALLS IN:** All PDP-11's; 4-lines per SPC slot at one unit load to Unibus. **PERFORMANCE:** Interfaces up to 4 Bell 801 ACU's with Unibus enabling any PDP-11 to dial any DDD network number to establish data link. **INPUT/OUTPUT:** 5-input signals from ACU are handled by EIA RS232 receivers. 6-output signals are transmitted using EIA RS232 drivers. **VECTOR/ADDRESS SELECTION:** Allows selection of device address and vector by use of pencil switches.

#### DV/16

(16-LINE DV11 REPLACEMENT)

**INSTALLS IN:** All PDP-11's; in less than one half the space of DV11. **DATA RATES:** 16-line throughput of up to 76,800 char/sec (19.2K baud full duplex for each line) total. **PROCESSING ADVANTAGE:** Word transfers (in lieu of byte DMA) permit user to operate within one half the DV11 bandwidth for data transfers. **OPERATING ADVANTAGE:** User may mix sync and async lines in combinations of 4 or 8 lines with modem control and full system software compatibility with all DV11 performance features.

### MEMORY PRODUCTS

#### SCAT/45™

(ADD-IN FASTBUS MEMORY)

**INSTALLS IN:** PDP-11/45, -11/50 and -11/55. **EXPANDS IN:** 32K word increments/board. One-half of the available Fastbus space will accept full 124K word complement. **ADDRESSES ON:** Any 4096 word boundary across entire 124K word range. User has full memory complement at 330 nsec cycle-time memory instead of 32K word limitation imposed by the computer manufacturer.

#### CACHE/45™

(CACHE BUFFER MEMORY)

**INSTALLS IN:** PDP-11/45, -11/50 and -11/55. **CAPACITY:** 2048 byte (1K word). **ENHANCEMENT FACTOR:** Run time reductions to 50% (100% speed improvement) are achievable. **CACHE PARITY:** Automatically goes off-line in event of any data error. **RANGE SELECTION:** User may optimize hit ratio by upper/lower limit switch settings. **SPECIAL FEATURE:** Cache/45 can be enabled via software or console switches.

#### CACHE/434™

(4K WORD CACHE MEMORY)

**INSTALLS IN:** PDP-11/34 and -11/34A without using any additional backplane space! **CAPACITY:** 8192 byte (4K word). **ENHANCEMENT FACTOR:** Run time reductions to 40% (70% speed improvement) are achievable. **CACHE PARITY:** Automatically goes off-line in event of any data or address error. **RANGE SELECTION:** User may optimize hit ratio by upper/lower limit switch settings. Cache action monitor indicates hit rate.

#### CACHE/440™

(4K WORD CACHE MEMORY)

**INSTALLS IN:** PDP-11/35 and -11/40 without using any additional backplane space! **CAPACITY:** 8192 byte (4K word). **ENHANCEMENT FACTOR:** Run time reductions to 40% (70% speed improvement) are achievable. **CACHE PARITY:** Automatically goes off-line in event of any data or address error. **RANGE SELECTION:** User may optimize hit ratio by upper/lower limit switch settings. Cache action monitor indicates hit rate.

#### EMULoader™

(ODT/BOOTSTRAP LOADER REPLACEMENT)

**INSTALLS IN:** PDP-11/05, -11/10, -11/35, -11/40, -11/45, -11/50 and -11/55. **MECHANICAL:** Dual width card replaces standard Unibus termination; requires no additional backplane space. **OPERATING ADVANTAGE:** Provides fixed console emulator (ODT) and bootstrap loaders for DL11, PC11, RF11, RK06, RK11, RP04/05/06, RP11, RS03/04, RX11, TC11, TM11 and TU16. **SPECIAL FEATURE:** Performs memory diagnostic each time a boot operation is done from ODT.

### GENERAL PURPOSE PRODUCTS

#### QNIVERTER™

(Q-BUS TO UNIBUS CONVERTER OR UNIBUS TO Q-BUS CONVERTER)

**INSTALLS IN:** LSI-11, LSI-11/23, PDP-11/03 and PDP-11/23 via quad-width card. **APPLICATIONS:** Allows Unibus-compatible controllers and memories to be used with LSI computer systems, or LSI-based peripherals to be used with PDP-11 computer systems. **FEATURES:** Supports features of LSI-11/23 including the full 128K address capability.

#### REBUS™

(BUS REPEATER – DB11 REPLACEMENT)

**INSTALLS IN:** All PDP-11's; without using any additional backplane space. **MECHANICAL:** One dual-width card plugs into the same pair of connectors as the Unibus extension cable which is then plugged into the REBUS connectors. **COMPATIBILITY:** Allows for 18 additional bus loads and 50 foot bus extension. Requires no software changes. Bus cycle time unaffected for devices on CPU side of REBUS – increased by 250 nsec max. for devices on outboard side.

#### DUAL I/O™

(GENERAL INTERFACE-DR11-C REPLACEMENT)

**INSTALLS IN:** All PDP-11's; in any SPC slot via quad-width card. **APPLICATION:** Dual I/O is equivalent to two (2) DR11-C's and provides the logic for program-controlled parallel transfer of 16-bit data between two (2) external user devices and Unibus system. **OPERATING ADVANTAGE:** Provides user the hardware/software equal to a dual DR11-C in one-half the space and one-half the bus loading of DR11-C's.

#### UNIFACE™

(UNIBUS-COMPATIBLE, GENERAL-PURPOSE IOP)

**INSTALLS IN:** All PDP-11's in any SPC slot via hex-width card. **APPLICATION(S):** Limited only by user's ingenuity: can form additional intelligent Unibus I/O channel(s), communications pre-processor(s), efficient KMC11 equivalent(s), or user-proprietary device(s). **OPERATING ADVANTAGE:** To PDP-11's, UNIFACE looks like a standard controller at one bus load; to devices served, UNIFACE acts as a powerful CPU.

#### BUSLINK/UNI, LSI OR U TO Q

(CPU TO CPU LINK: UNIBUS TO UNIBUS, UNIBUS TO Q-BUS OR Q-BUS TO Q-BUS)

**INSTALLS IN:** All PDP-11's and/or LSI-11's via pairs of hex-width, hex/quad-width, or quad-width cards and supplied cables. **APPLICATION:** Provides full DA11-B (Unibus or Q-bus link) compatibility on single cards. BUSLINK operates at DA11-B transfer rates over distances of up to 50 feet. **OPERATING ADVANTAGE:** Requires only one card per CPU to effect link at minimal bus loading vs. full system unit per computer.

Able cards give you the best way to make your present PDP-11 run better than ever and avoid up-grading to a more expensive model. We give you time to plan ahead and to control your cash flow with the most sophisticated line on the market today. Our cards are priced competitively. They install in minutes. They provide immediate results. And they always out-perform the competition. They should. We are the only computer people in the computer-system-enhancement business. Our customers will tell you we are the best qualified to help you get the most out of your present PDP-11. Write for details. Able Computer, 1751 Langley Avenue, Irvine, California 92714 (714) 573-7020 TWX 910-595-1729.

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